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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/658,552

09/10/2003

Yang-Lim Choi

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06/29/2006

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EXAMINER

WU, YICUN

ART UNIT

PAPER NUMBER

2165

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/658,552	<b>Applicant(s)</b> CHOI ET AL.	
	<b>Examiner</b> Yicun Wu	<b>Art Unit</b> 2165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,3,7 and 8 is/are rejected.
- 7) ☒ Claim(s) 4-6 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/10/03 10/22/04</u> . | 6) <input type="checkbox"/> Other: _____  |

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### III. DETAILED ACTION

1. Claims 2-9 are presented for examination.

#### **Claim Rejections - 35 USC 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

2. Claims 2-9 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, the claims are not directed towards the final result that is “useful, tangible and concrete (See State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

According to the New Guidelines of October 26, 2005, which states that “A claim limited to a machine or manufacture, which has a practical application, is statutory. In most cases a claim to a specific machine or manufacture will have a practical application. See Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557)... a specific machine to produce a useful, concrete, and tangible result (State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

Examiner requests Applicant to include in Applicant’s claimed limitations (in all the claims) the following:

*Claim limitation describing --*

1. *What is the practical application?*

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*2. What is final result which Applicant considers concrete, useful and tangible?*

Because the “practical application, result, concrete, useful and tangible” limitations are not claimed in Applicant’s claims, Examiner asserts that the above listed claims are nonstatutory.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation “the tree data structure” in line 9. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

**Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 2-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganapathy et al (U.S. Patent No. 6,411,953), in view of Zhu et al. (U.S. Patent No. 6,584,465).

As to Claim 1, Ganapathy et al discloses a method of indexing a feature vector space comprising the steps of:

(a) partitioning the feature vector space into a plurality of approximation regions (i.e. separate clusters. Col. 4, lines 1-53);

(b) selecting an arbitrary approximation region to determine whether the selected approximation region is heavily or sparsely distributed (i.e. complexity and heaviness. Col.3, lines 1-10); and

(c) if the approximation region is determined to be sparsely distributed (i.e. complexity and heaviness. Col.3, lines 1-10), together with any other sparsely distributed approximation region spaced apart by a distance less than a predetermined distance (i.e. distance measure. Col.3, lines 1-10).

Ganapathy et al does not teach indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure.

Zhu et al. teaches indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure (col.. 8, lines 1-10).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ganapathy et al to include indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure.

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It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Ganapathy et al by the teaching of Zhu et al. to include indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure with the motivation to more create a automatic feature similarity based pattern search and retrieval system as taught by Zhu et al. (col. 2, lines 8-40).

As to claim 3, Ganapathy et al as modified teaches a method wherein the steps (b) and (c) are repeatedly performed on all approximation regions partitioned in the step (a) (Ganapathy et al. fig. 5)

As to claim 7, Ganapathy et al as modified teaches a method wherein the plurality of approximation regions are subspaces used in random indexing Ganapathy et al. Col. 3, lines 55-67 and Col. 4, lines 1-53).

As to claim 8, Ganapathy et al as modified teaches a method wherein the plurality of approximation regions are subspaces used in multi-dimensional scaling (MDS), Fast-map, or locality sensitive hashing (i.e. MDS. Ganapathy et al. Col. 3, lines 55-67).

#### **Allowable Subject Matter**

6. Claims 4-6, and 9 would be allowable if rewritten in independent and if rewritten to overcome the rejection(s) under 35 U.S.C. 101 and 112 set

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forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record Ganapathy et al (U.S. Patent No. 6,411,953) and Zhu et al. (U.S. Patent No. 6,584,465) does not disclose, teach or suggest the claimed limitations of (in combination with all other features in the claims):

if the approximation region selected in the step (b) is determined to be heavily distributed, indexing the corresponding approximation region as an ordinary node, partitioning the corresponding approximation region into a plurality of sub-approximation regions, and repeating the step (b) for the partitioned sub-approximation regions, as claimed in claim 4.

The prior art of record Ganapathy et al (U.S. Patent No. 6,411,953) and Zhu et al. (U.S. Patent No. 6,584,465) does not disclose, teach or suggest the claimed limitations of (in combination with all other features in the claims):

determining whether all approximation regions are indexed as special nodes; (e) if all approximation regions are not indexed as special nodes, selecting the next approximation region and performing the steps after (b) on the approximation region repeatedly; and (f) if all approximation regions are indexed as special nodes, completing the indexing, as claimed in claim 6.

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The prior art of record Ganapathy et al (U.S. Patent No. 6,411,953) and Zhu et al. (U.S. Patent No. 6,584,465) does not disclose, teach or suggest the claimed limitations of (in combination with all other features in the claims):

if the approximation region is determined to be sparsely distributed, indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure together with an adjacent sparsely distributed approximation region, as claimed in claim 9.

#### **Other Prior Art Made of Record**

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. U.S. patents and U.S. patent application publications will not be supplied with Office actions.

Examiners advises the Applicant that the cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov) <<http://www.uspto.gov/>>), from the Office of Public Records and from commercial sources. For the use of the Office's PAIR system, Applicants may refer to the Electronic Business Center (EBC) at <<http://www.uspto.gov/ebc/index.html>> or 1-866-217-9197.

#### **Conclusion**




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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yicun Wu whose telephone number is 571-272-4087.

The examiner can normally be reached on 8:00 am to 4:30 pm, Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.



Yicun Wu  
Patent Examiner  
Technology Center 2100

June 19, 2006